

ABSTRACT OF THE DISCLOSURE

Devices and methods are provided for diagnosing and repairing mitral valve defects such as mitral valve regurgitation. According to an exemplary method, mitral valve function is visualized by transesophageal echocardiography. A catheter is inserted along the venous system of the patient through the atrium into the mitral valve. A suction tip grasps the leaflets of the mitral valve to immobilize and juxtapose the leaflets at a point simulating a stitch, and the mitral valve is again observed to confirm that fastening at that point will repair the prolapse or other defect. The mitral valve leaflets are then via a fastening such as a staple or shape memory rivet. The fastener may be inserted by a stapling assembly in the venous catheter tip, or by a separate stapler that is inserted along an arterial path from the opposite direction and guided along a transcatheter rail to the immobilized point. Upon completion of the repair process, the mitral valve is once again visualized by transesophageal echocardiography to determine whether repair thereof has been effected.

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